**Claims**

1. A nucleic acid molecule selected from a group consisting of

i) nucleic acid molecules encoding a polypeptide comprising the amino acid sequence of SEQ ID NO:2,

ii) nucleic acid molecules comprising the sequence of SEQ ID NO:1,

iii) nucleic acid molecules having the sequence of SEQ ID NO:1,

iv) nucleic acid molecules the complementary strand of which hybridizes under stringent conditions to a nucleic acid molecule of (i), (ii), or (iii); and

v) nucleic acid molecules the sequence of which differs from the sequence of a nucleic acid molecule of (iii) due to the degeneracy of the genetic code;

wherein the polypeptide encoded by said nucleic acid molecule has MGAT-X2 activity.

2. A purified polypeptide selected from a group consisting of

i) polypeptides having the sequence of SEQ ID NO:2,

ii) polypeptides comprising the sequence of SEQ ID NO:2,

iii) polypeptides encoded by nucleic acid molecules of claim 1; and

iv) polypeptides which show at least 99%, 98%, 95%, 90%, or 80% homology with a polypeptide of (i), (ii), or (iii);

wherein said purified polypeptide has MGAT-X2 activity.

3. A vector comprising the nucleic acid molecule of claim 1.

4. A host cell containing the vector of claim 3.

5. A method of producing a MGAT-X2 comprising the steps of

i) culturing the host cell of claim 4 under suitable conditions and

ii) recovering the MGAT-X2 from the culture medium.

6. A method for the detection of a polynucleotide encoding a MGAT-X2 in a sample comprising the steps of

i) hybridizing a polynucleotide of claim 1 to nucleic acid material of the sample, thereby forming a hybridization complex; and

ii) detecting said hybridization complex.

7. The method of claim 6, wherein, before hybridization, the nucleic acid material of the sample is amplified.

8. A method for the detection of a polynucleotide of claim 1 or a polypeptide of claim 2 comprising the steps of

i) contacting a sample with a reagent which specifically interacts with a polynucleotide of claim 1 or a polypeptide of claim 2; and

ii) detecting said interaction.

9. A diagnostic kit for conducting the method of any of claims 6 to 8.

10. A method for screening for regulators of the activity of a MGAT-X2 comprising the steps of

i) contacting a test compound with a polypeptide of claim 2,

ii) detect binding of said test compound to said polypeptide of claim 2,

wherein test compounds that bind under (ii) are identified as potential regulators of the MGAT-X2 activity.

11. The method of claim 10, wherein the step of contacting is in or at the surface of a cell.

12. The method of claim 10 wherein the cell in in vitro.

13. The method of claim 10, wherein the step of contacting is in a cell-free system.

14. The method of claim 10, wherein the polypeptide is coupled to a detectable label.

15. The method of claim 10, wherein the compound is coupled to a detectable label.

16. The method of claim 10, wherein the test compound displaces a ligand which is first bound to the polypeptide.

17. The method of claim 10, wherein the polypeptide is attached to a solid support.

18. The method of claim 10, wherein the compound is attached a solid support.

19. A method of screening for regulators of the activity of a MGAT-X2 comprising the steps of

i) measuring the activity of a polypeptide of claim 2 at a certain concentration of a test compound or in the absence of said test compound,

ii) measuring the activity of said polypeptide at a different concentration of said test compound,

wherein said test compound is identified as a regulator of the activity of a MGAT-X2 when there is a significant difference between the activities measured in (i) and (ii).

20. A method of screening for regulators of the activity of a MGAT-X2 comprising the steps of

i) measuring the activity of a polypeptide of claim 2 at a certain concentration of a test compound,

ii) measuring the activity of a polypeptide of claim 2 at the presence of a compound known to be a regulator of MGAT-X2.

21. The method of claim 19 and 20, wherein the activities are measured in a cell.

22. The method of claim 19 and 20, wherein the cell is in vitro.

23. The method of claim 19 and 20, wherein the activities are measured in a cell-free system.

24. A method of screening for regulators of MGAT-X2 comprising the steps of

i) contacting a test compound with a nucleic acid molecule of claim 2,

ii) detect binding of said test compound to said nucleic acid molecule,

wherein said test compound is identified as a potential regulator of MGAT-X2 when it binds to said nucleic acid molecule.

25. The method of claim 24 wherein the nucleic acid molecule is RNA.

26. The method of claim 24 wherein the contacting step is in or at the surface of a cell.

27. The method of claim 24 wherein the contacting step is in a cell-free system.

28. The method of claim 24 wherein the polypeptide or nucleic acid molecule is coupled to a detectable label.

29. The method of claim 24 wherein the test compound is coupled to a detectable label.

30. A method of regulating the activity of a MGAT-X2 wherein MGAT-X2 is contacted with a regulator of MGAT-X2.

31. A method of diagnosing a MGAT-X2 related disease in a diseased mammal comprising the steps of

i) measuring the amount of a nucleic acid molecule of claim 1 in a sample taken from said diseased mammal,

ii) comparing the result of (i) to the amount of said nucleic acid molecule in one or several healthy mammals,

wherein a MGAT-X2 related disease is diagnosed in the diseased mammal when the amount of said nucleic acid molecule in the diseased mammal is significantly different from the amount of said nucleic acid molecule in the healthy mammal/mammals.

32. A pharmaceutical composition comprising a nucleic acid molecule of claim 1.

33. A pharmaceutical composition comprising a vector of claim 3.

34. A pharmaceutical composition comprising a polypeptide of claim 2.

35. A pharmaceutical composition comprising a regulator of any of claims 10 to 31.

36. A pharmaceutical composition comprising a regulator of any of claims 10 to 31 for the treatment of cardiovascular diseases, dermatological diseases, metabolic diseases or muscle-skeleton disorders in a mammal.

37. Use of regulators of a MGAT-X2 identified by any of claims 10 to 31 for the preparation of a pharmaceutical composition useful for the treatment of cardiovascular diseases, dermatological diseases, metabolic diseases or muscle-skeleton disorders in a mammal.

38. Method for the preparation of a pharmaceutical composition useful for the treatment of cardiovascular diseases, dermatological diseases, metabolic diseases or muscle-skeleton disorders in a mammal comprising the steps of

i) identifying a regulator of MGAT-X2 by a method of any of claims 10 to 31

ii) determining whether said regulator ameliorates the symptoms of cardiovascular diseases, dermatological diseases, metabolic diseases or muscle-skeleton disorders in a mammal.

iii) combining of said regulator with an acceptable pharmaceutical carrier.

39. Use of a regulator of MGAT-X2 identified by any of claims 10 to 31 for the treatment of cardiovascular diseases, dermatological diseases, metabolic diseases or muscle-skeleton disorders in a mammal.

40. Use of a regulator of MGAT-X2 identified by any of claims 10 to 31 for the regulation of MGAT-X2 activity in a mammal having a cardiovascular disease, dermatological disease, metabolic disease or muscle-skeleton disorder.

41. Use of a pharmaceutical composition according to any of claims 35 to 40, wherein the regulator is

i) a small molecule,

ii) an RNA molecule,

iii) an antisense oligonucleotide,

iv) a polypeptide,

v) an antibody, or

vi) a ribozyme.